CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)

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Project Number

S1101

Project Title

Men with a Lot of Mussels

Abstract

Objectives/Goals

Our goal is to explore the biodiversity of the Davenport Landing tide pools along a pre-established vertical transect. Our investigative question is: How will biodiversity of organisms change along the vertical transect as sea mussel population increases? Sea mussel population is predicted to rise due to decreased level of predation from the dwindling number of sea stars and sea otters, and should impact biodiversity along the rocky intertidal. We predict that the sea mussels will crowd out other organisms and decrease the biodiversity of the area.

Methods/Materials

1. Collect the abiotic factors of temperature and wind speed using an anemometer and thermometer.
2. Line tape through eye bolts, which descend perpendicular to the ocean.
3. Center quadrats over the transect tape every 3m at: 0m (A), 3m (B), 6m (C), 9m (D), 12m (E), 15m (F), 18m (G), and 21m (H).
4. Record Species abundance within each quadrat as instructed on the LiMPETS data sheet (see LiMPETS website for sheet and additional information). For algae, only the square(s) that contain the holdfast should be recorded. Count only living organisms, this may require some close investigation.

Results

Site	Biodiversity(1-4)	% mussel coverage
A	2.03778843	25.45%
B	2.16186264	80%
C	2.11935829	100%
D	1.85974718	92.36%
E	1.90388058	79.64%
F	2.33233991	42.55%
G	1.99515944	0%
H	1.99881546	0%

Conclusions/Discussion

We have found that there is an inversely proportional relationship between a site#s mussel presence and the site#s biodiversity, according to the Shannon Wiener index. At sites C and D where mussel presence increases, the biodiversity decreases, while at sites A, B, E and F, where mussel presence is lower, the biodiversity is higher. This shows an inversely proportional relationship between mussels and biodiversity along the vertical transect.

Summary Statement

The expansion of Sea Mussel abundance and its effect on the other noted creatures in the tidepools.

Help Received

Counting equiptment was given to us and we were taught how and were to collect data, but have been on our own for most of the project.